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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/798,546	03/11/2004	Rainer Graumann	P03,0100-01	8306

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PATENT DEPARTMENT  
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EXAMINER
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KIKNADZE, IRAKLI

ART UNIT	PAPER NUMBER
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2882

DATE MAILED: 06/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/798,546

Applicant(s)

GRAUMANN ET AL.

Examiner

Irakli Kiknadze

Art Unit

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 6/18/2004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claim 1, at line 11, " the isocenter " lacks antecedent basis. At lines 9-12, the limitation " move the central beam of the x-ray source back into the isocenter " is indefinite because the central beam and the isocenter are fixed with respect to each other. Thus the central beam cannot be moved back into the isocenter.

4. Claims 2-9 include similar deficiencies and/or are rejected by virtue of their dependency.

### ***Claim Objections***

5. Claims 1, 2 and 6 are objected to because of the following informalities:

With respect to claims 1, 2 and 6 it has been held that the recitation that an element is "configured to", "being configured" or "configured for" performing a function is

not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense.

### ***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

7. Claim 7 is rejected under 35 U.S.C. 102(b) as being anticipated by Graumann et al. (DE 100 03 524 A1).

With respect to claim 7, Graumann ('524) teaches a method for operating a 3-D C-arm x-ray device, comprising: providing a non-isocentric C-arm on the x-ray device; positioning an x-ray source for producing an x-ray beam in close proximity to an isocenter within the C-arm; and orbitally rotating the C-arm during an examination of the x-ray source and adjusting a vertical adjustment device of the C-arm (column 2, lines 33-50 and column 4, lines 1-4).

### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-6, 8 and 9 are rejected under 35 U.S.C. 103(a) as being obvious over Graumann et al. (DE 100 03 524 A1) and Graumann (US Patent 6,139,183).

With respect to claim 1, Graumann ('524) teaches (Fig.1) an X-ray device for reconstructing 3D images from 2D projections using a C-arm x-ray device, comprising: an x-ray source (8); a non-isocentric C-arm (7) on which the x-ray source (8) is positioned and that can be orbitally rotated (column 2, lines 33-50), the C-arm x-ray device comprising: a vertical adjustment device (4) vertically adjusting the C-arm (column 4, lines 1-4). Graumann ('524) is silent about a horizontal adjustment device horizontally adjusting the C-arm. Graumann ('183) teaches a C-arm x-ray device comprising: a vertical adjustment device (4) vertically adjusting the C-arm and a horizontal adjustment device to horizontally adjust a C-arm (8) that enables an adjustment of the C-arm within a plane of the C-arm (column 4, lines 13-20). This arrangement can adjust a central x-ray beam (ZC) of the x-ray source relative to a subject (p) for registering successive 2D projections of the subject from different projection direction used for 3D image reconstruction (column 1, lines 5-11 and column 2, lines 42-65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the C-arm's horizontal and vertical adjustment teaching of Graumann ('183) in the x-ray device of Graumann ('524) to provide an automatically adjustable non-isocentric C-arm x-ray device that would allow one to register successive 2D projections of the subject from the additional projection directions used for reconstructing enhanced 3D images of the subject.

With respect to claims 2 and 3, the vertical and horizontal adjustment device of Graumann ('183) includes an electronic control (as a control and calculating unit (21)), fashioned as a computer, to control the motor-adjustment of C-arm (orbital motion, horizontal and vertical adjustment devices)(column 4, lines 9-20 and column 4, lines 60-64).

With respect to claims 4-6, the control and calculating unit (21) of Graumann ('183) would require a characteristic storage storing compensation movement values based on rotation angle to perform the reconstruction of the image (see Graumann ('183), paragraph bridging columns 4 and 5).

With respect to claims 8 and 9, Graumann ('524) teaches storing characteristics in a characteristic storage comprising values related to a vertical compensation movement but fails to teach storing characteristics in a characteristic storage comprising values related to a horizontal and a vertical compensation movement. Graumann ('183) teaches a characteristic storage (associated with unit (21)) that is connected with the electronic control comprising values related to a horizontal and a vertical compensation movement, compensation being made dependent on a change of a rotation angle of the C-arm (column 4, line 60 – column 5, line 11). It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the C-arm's horizontal and vertical adjustment teaching of Graumann ('183) in the x-ray device of Graumann ('524) to provide automatically adjustable non-isocentric C-arm x-ray device that allow one to register successive 2D projections of the subject from the additional projection directions used for reconstructing enhanced 3D images of the subject.

**Conclusion**

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Irakli Kiknadze whose telephone number is 571-272-2493. The examiner can normally be reached on 9:00- 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on 571-272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Irakli Kiknadze  
June 13, 2005

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**EDWARD J. GLICK  
SUPERVISORY PATENT EXAMINER**